

Claim Amendments

1. (currently amended) A ball drop apparatus for use in a tool string, comprising:

a housing;

a ball drop cage disposed in the housing;

an actuating device ball releasably retained disposed in the housing ball drop cage, wherein the actuating device ball has an outermost dimension, the ball drop cage being movable in the housing from a retaining position, wherein the actuating ball is retained in the ball drop cage, to a releasing position, wherein the actuating ball is released and can move downwardly in the tool string; and

a seat in the housing adapted to receive a releasing device;

wherein the releasing device has an outermost dimension smaller than the outermost dimension of the actuating device ball, the actuating device ball is released into the tool string when the releasing device engages the seat and pressure in the tool string is increased to a desired pressure, and the released actuating device ball can engage a downhole tool located in the tool string.

2. (cancelled).

3. (cancelled).

4. (cancelled).

5. (currently amended) The ball drop apparatus of claim [[3]] 1 further comprising a seat sleeve disposed in the housing, wherein the seat is defined on the seat sleeve, and the seat sleeve is connected to the ball drop cage so that downward movement of the seat sleeve urges the

ball drop cage downwardly to the releasing position to release the actuating ball.

6. (cancelled).

7. (currently amended) The ball drop apparatus of claim [[6]] 1 wherein the seat sleeve is releasably disposed in the housing.

8. (original) The ball drop apparatus of claim 7 wherein the seat sleeve moves in the housing after the releasing device engages the seat and pressure is increased in the tool string to a desired pressure.

9. (currently amended) A ball drop apparatus for use in a tool string, wherein the tool string has an actuating seat for receiving an actuating ball to actuate a tool in the tool string, comprising:

a housing adapted to be connected in the tool string above the actuating seat, wherein the actuating ball is releasably retained in the housing; and

a sleeve detachably disposed in the housing above the actuating ball, wherein movement of the sleeve from a first position to a second position releases the actuating ball for displacement downwardly in the tool string to engage the actuating seat, wherein a flow path for providing fluid flow to the actuating ball is defined through the housing, wherein the flow path is blocked when the sleeve is in the first position, and the flow path is open when the sleeve is in the second position.

10. (original) The ball drop apparatus of claim 9 wherein the sleeve comprises a releasing seat, wherein the releasing seat is adapted to receive a releasing ball, and the sleeve moves from the first position to the second position after the releasing ball has engaged the releasing seat.

11. (original) The ball drop apparatus of claim 9 further comprising a ball drop cage disposed in the housing, wherein the actuating ball is releasably retained in the ball drop cage, the sleeve is connected to the ball drop cage so that the ball drop cage moves from a retaining position to a releasing position wherein the actuating ball is released when the sleeve moves from the first position to the second position.

12. (original) The ball drop apparatus of claim 11 wherein the sleeve comprises a releasing seat for receiving a releasing ball.

13. (original) The ball drop apparatus of claim 12 wherein the sleeve defines a central flow passage in fluid communication with an exterior of the housing, and the central flow passage is blocked when the releasing ball engages the releasing seat.

14. (cancelled).

15. (currently amended) A method of actuating a tool in a tool string in a well, wherein the tool string has an actuating seat therein for receiving an actuating device ball, comprising the steps of:

releasably positioning the actuating device ball in a ball cage disposed in the tool string above the actuating seat;

lowering the tool string into the well;

displacing a flow restriction into the tool string;

landing the flow restriction on a releasing seat located in the tool string above the actuating seat;

moving the ball cage downwardly to release releasing the actuating device ball so

that the actuating device ball engages the actuating seat; and

increasing pressure in the tool string to actuate the tool.

16. (original) The method of claim 15 further comprising the step of blocking fluid flow in the tool string to prevent fluid from passing therethrough and contacting the actuating device prior to the releasing step.

17. (original) The method of claim 16 further comprising the step of opening a fluid flow path through the tool string so that fluid may be displaced therethrough to contact the actuating device, wherein the opening step occurs substantially simultaneously with or after the releasing step.

18. (original) The method of claim 15 wherein the actuating device is disposed in a ball drop cage movable from a retaining position to a releasing position, and the releasing seat is defined by a sleeve detachably connected in the tool string, wherein the method further comprises the step of urging the ball drop cage from the retaining position to the releasing position with downward movement of the sleeve.

19. (original) The method of claim 18 wherein the urging step comprises the step of increasing pressure in the tool string after the flow restriction has landed on the releasing seat.

20. (original) The method of claim 15 further comprising the steps of:
drilling the well to intersect a producing formation; and
placing a casing in the well.

21. (cancelled).

22. (currently amended) The method of claim [[24]] 15 further comprising the step of increasing pressure in the tool string after the landing step, wherein the increase in pressure causes the actuating ball to be released.

23. (currently amended) The method of claim [[24]] 15 further comprising the step of moving the releasing seat downwardly after the landing step, wherein downward movement of the releasing seat causes the actuating ball to be released.

24. (cancelled).

25. (currently amended) The method of claim [[24]] 15 wherein the releasing seat is defined on a sleeve connected to the ball cage, and downward movement of the sleeve moves the ball cage downwardly.

26. (new) A ball drop apparatus for use in a tool string comprising:
a housing;
a ball drop cage disposed in the housing;
an actuating ball releasably disposed in the ball drop cage; and
a sleeve disposed in the housing above the ball drop cage, wherein the sleeve has a plurality of longitudinally extending flow passages for allowing flow therethrough to the actuating ball, wherein flow through the longitudinally extending flow passages is blocked in a first position of the sleeve and is permitted in a second position of the sleeve.

27. (new) The ball drop apparatus of claim 27 wherein the ball drop cage is connected to and movable with the seat.

28. (new) The ball drop apparatus of claim 26 wherein the seat has a central flow passage communicated with an exterior of the housing.
29. (new) The ball drop apparatus of claim 28 wherein the sleeve moves from the first to the second position when a releasing device blocks flow through the central flow passage.
30. (new) The ball drop apparatus of claim 26 wherein movement of the sleeve from the first position to the second position releases the actuating ball for displacement downwardly in the tool string.